

WHAT IS CLAIMED IS:

1. An apparatus for displaying a three-dimensional image of an object to be displayed, through a superimposing of a plurality of images of said object, which are placed so as to be apart from each other on a line of sight of an observer, comprising:
  - 5 a first display unit having a first screen;
  - a second display unit disposed so as to face said first display unit, said second display unit having a second screen, which is light-transmissible; and
  - 10 an optical transmission unit disposed between said first display unit and said second display unit, to transmit light, which is emitted from portions of said first screen, to respective portions of said second screen.
2. The apparatus as claimed in Claim 1, wherein:
  - 15 said first display unit comprises:  - a first substrate; and
  - a first luminescent layer formed on said first substrate, said first luminescent layer emitting light so as to provide said first screen; and
  - said second display unit comprises:  - 20 a second substrate having a light transmission property; and
  - a second luminescent layer formed on said second substrate, said second luminescent layer emitting light so as to provide said second screen.
3. The apparatus as claimed in Claim 2, wherein:
  - 25 said optical transmission unit is disposed between said first display unit and an opposite surface of said second substrate to said second luminescent layer.

4. The apparatus as claimed in Claim 3, wherein:  
said first substrate has a light transmission property; and  
said optical transmission unit is disposed between said second  
display unit and an opposite surface of said first substrate to said first  
5 luminescent layer.
5. The apparatus as claimed in Claim 2, wherein:  
said optical transmission unit has a same refractive index as  
that of said first substrate.
6. The apparatus as claimed in Claim 2, wherein:  
10 said optical transmission unit has a same refractive index as  
that of said second substrate.
7. The apparatus as claimed in Claim 1, wherein:  
said optical transmission unit is provided so as to correspond to  
respective pixels of said first display unit and said second display unit.
- 15 8. The apparatus as claimed in Claim 1, wherein:  
said first display unit has a first pixel block comprising a  
plurality of pixels and said second display unit has a second pixel  
block comprising a plurality of pixels, said first pixel block  
corresponding to said second pixel block; and  
20 said optical transmission unit is provided so as to correspond to  
each of said first pixel block and said second pixel block.
9. The apparatus as claimed in Claim 1, wherein:  
said optical transmission unit comprises optical fibers.
10. The apparatus as claimed in Claim 9, wherein:  
25 each of said optical fibers has a core, said core having a smaller  
size than each of the pixels of said first display unit.

11. The apparatus as claimed in Claim 9, wherein:  
each of the pixels of said first display unit has a same shape as  
said core.
12. The apparatus as claimed in Claim 9, wherein:  
5 said optical fibers are connected to at least one of said first  
display unit and said second display unit by an optical adhesive having  
a light transmission property.
13. The apparatus as claimed in Claim 12, wherein:  
said optical adhesive has a same refractive index as that of said  
10 core.
14. The apparatus as claimed in Claim 1, wherein:  
at least one of said first substrate and said second substrate  
contains at least one of glass and plastic.
15. The apparatus as claimed in Claim 1, wherein:  
15 said second display unit comprises an organic  
electroluminescence display device.
16. The apparatus as claimed in Claim 15, wherein:  
said second substrate comprises a polymer film.